

$$a) \frac{6+2i}{5-i} \cdot \frac{1-3i}{2+6i} = \frac{6-18i+2i+6}{10+30i-2i+6} = \frac{12-16i}{16+28i}$$

$$\frac{3-4i}{4+7i} \cdot \frac{4-7i}{4-7i} = \frac{12-21i-16i-28}{16+49} = \frac{-16-37i}{65}$$

$$\begin{array}{r} \text{+28i} \\ \hline -28i \end{array}$$

$$= \frac{-16}{65} - \frac{37i}{65}$$

$$(53) \quad i = 0 + i$$

$$(61) \quad \frac{7}{3}i = 0 + \frac{7}{3}i$$

$$(63) \quad i = 0 + i$$

2d)

$$\left(\frac{6+2i}{1+3i} \cdot \frac{1-3i}{1-3i} + \frac{2-i}{1-3i} \cdot \frac{1+3i}{1+3i} \right) \cdot \frac{1-3i}{2+6i}$$

$$\left(\frac{6-18i+2i+6}{1+9} + \frac{2+6i-i+3}{1+9} \right) \cdot \frac{1-3i}{2+6i}$$

$$\frac{17-11i}{10} \cdot \frac{1-3i}{2+6i} = \frac{17-51i-11i-33}{20+60i}$$

$$= \frac{-16-62i}{20+60i} = \frac{-8-31i}{10+30i} \cdot \frac{10-30i}{10-30i}$$